

**In the Claims:**

1. A method comprising modeling a physical system to create a computer model of the physical system and determining sensitivity partial derivatives for the model using an object-oriented Cartesian embedding algorithm.
2. A system comprising a computing system storing a computer model of a physical system wherein the computing system includes a computer program executing on the system that determines sensitivity partial derivatives for the model using an object-oriented Cartesian embedding algorithm.
3. An article of manufacture, comprising a computer program stored on a machine readable medium, wherein when executed on a suitable computing system the program determines sensitivity partial derivatives for a model of a physical system, wherein the partial derivatives are determined using an object-oriented Cartesian embedding algorithm.